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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09-931,665	08/16/2001	Daniel L. Tuma	758.1151USU1	3353

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EXAMINER

LAWRENCE JR, FRANK M

ART UNIT	PAPER NUMBER
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1724

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DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,665

Applicant(s)

TUMA, DANIEL L.

Examiner

Frank M. Lawrence

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 20-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 10-19 is/are allowed.
- 6) ☒ Claim(s) 2-6, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-19 in Paper No. 7 is acknowledged.

Note that examination of the application has been transferred to examiner Frank M. Lawrence in Art Unit 1724 (fluid separations).

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 32 and 33 in figure 1. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because the reference number "36b" should be changed to "36c" in figure 8. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: To remain consistent with the drawings, in line 11 of page 12, "50" should be changed to "50a", and in line 18 of page 19, "32a" should be changed to "32c" and "33b" should be changed to "33c".

Appropriate correction is required.

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet *within the range of 50 to 150 words*. It is important that the abstract not exceed

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150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Filter Construction for Disk Drives".

Information Disclosure Statement

7. The listing of references in the specification (pages 9 and 12) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claim 2 is rejected under 35 U.S.C. 102(e) as being anticipated by Voights (6,266,208; abstract; figures; col. 3, line 44 to col. 4, line 6; col. 4, lines 49-60).

10. Voights ('208) teaches an integrated air filter for use in a disk drive, comprising a housing (12) defining an air inlet (44) and an air outlet (38) outside of the disks, an adsorbent filter element (16) within the housing and in fluid communication with the inlet and outlet to filter air entering the disk drive, and a recirculation filter (14) positioned to filter air circulating within the drive, wherein the inlet is positioned farther from the center of the rotating disk of the drive than the air outlet (see figure 6).

11. Claims 2, 4-6, 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Dauber (6,395,073; figures 1-3; col. 5, lines 20-42; col. 7, lines 15-56).

12. Dauber ('073) teaches a multi-function filter for removing contaminants from the interior of a disk drive, comprising a housing (10) defining an air inlet (11) and an air outlet through a filter (27) outside of the disks, an adsorbent filter element (18, 26) within the housing and in fluid communication with the inlet and outlet to filter air entering the disk drive, a scoop (24), a channel connecting the scoop and the air outlet, and a recirculation filter (7, 26) positioned in the channel to filter air circulating within the drive, wherein the inlet is positioned farther from the center of the rotating disk of the drive than the air outlet and at least 0.25 times the radius of the disk (see figure 3). The recirculation filter has a width exposed to air passing through the channel that is at least 15% greater than the width of the channel upstream of the filter.

13. Claims 2, 4 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Azarian et al. (6,238,467; figures 1-4, 8b; col. 5, line 61 to col. 6, line 16; col. 12, lines 24-54; col. 13, lines 24-35; col. 14, line 45 to col. 15, line 20).

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14. Azarian et al. ('467) teach a multi-functional filter assembly for use in a disk drive assembly, comprising a housing (5) defining an air inlet (11) and an air outlet (16) outside of the disks, an adsorbent filter element (6) within the housing and in fluid communication with the inlet and outlet to filter air entering the disk drive, and a recirculation filter (8, 14) positioned to filter air circulating within the drive, wherein the inlet is positioned farther from the center of the rotating disk of the drive than the air outlet and at least 0.25 times the radius of the disk (see figures 3, 4).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al. (4,471,395; abstract; figures 1, 4; col. 2, line 53 to col. 3, line 6) in view of Brown et al. (5,447,695; col. 1, line 61 to col. 2, line 15; col. 3, lines 52-59).

17. Beck et al. ('395) disclose a filtration system for a disk drive, comprising a housing (32) defining an air inlet (42) outside the disks and an air outlet, a breather filter (40) positioned in the housing and in communication with the inlet and outlet for filtering air entering the drive, and a recirculation filter (36) to filter air circulating in the drive, wherein the inlet is positioned farther from the center of the rotating disk than the outlet (see figure 1). The instant claim differs from the disclosure of Beck et al. ('395) in that the breather filter includes an adsorbent.

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18. Brown et al. ('695) disclose a breather filter assembly for a disk drive including an activated carbon containing adsorbent sheet. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the breather filter of Beck et al. ('395) by incorporating an adsorbent material in order to provide a filter that can remove organic vapors that can damage the performance of the recording disks.

19. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Azarian et al. ('467), Voights ('208), Dauber ('073), or Beck et al. ('395) in view of Brown et al. ('695) as applied to claim 2 above, and further in view of Imai et al. (4,710,830; abstract; figures).

20. Either one of the prior art references or combination discloses all of the limitations of the claim except that the air outlet is configured for positioning inside the edge of the rotating disk. Imai et al. ('830) disclose an internal air filter for a disk drive assembly, comprising an air inlet that is outside of the disks and an outlet that is positioned inside the edge of the disks using a guide or duct. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the filter outlet of the prior art references by placing it inside the edge of the rotating disk in order to obtain an increased pressure differential across the filter because of the low pressure near the outlet, resulting in an improved filtration efficiency.

Allowable Subject Matter

21. Claims 1 and 10-19 are allowed.

22. The following is an examiner's statement of reasons for allowance: A filter construction for a disk drive assembly, comprising a housing with an air inlet farther from the center of a rotating disk than a housing outlet, an air scoop and a channel connecting the scoop with the

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outlet, wherein the scoop contains an opening that is positioned at a greater than 15 degree angle to the edge of the rotating disk, and the outlet is substantially parallel to the edge of the disk, an adsorbent filter element in the housing and in fluid communication with the inlet and outlet to filter air entering the drive assembly, and a recirculation filter element positioned in the air channel between the air scoop and outlet to filter circulating air, wherein the recirculation filter has a width exposed to air passing through the channel that is greater than the air channel width at the recirculation air filter position, is not taught, disclosed or suggested in a single reference or a combination of references in the prior art of record. Also, a filter construction comprising a housing defining an air inlet, air scoop, air outlet, and channel having a curved length connecting the scoop and outlet, the channel having curved walls with at least one concave, or the scoop having a width, the outlet having a width, and the channel having a width along its length between the scoop and the outlet, wherein at least one position along the length has a width less than the air scoop width, a diffusion channel in fluid connection with the inlet and outlet, an adsorbent filter in fluid connection with the diffusion channel and outlet, and a recirculation filter in the channel between the scoop and outlet, is not disclosed in the prior art of record. The cited prior art fails to suggest a motivation for using the recited scoop configurations in combination with the other known elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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23. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

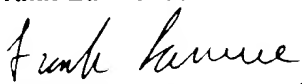
24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose breather and recirculation filters for disk drive assemblies.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 703-305-0585. The examiner can normally be reached on Mon-Thurs 7:30-5:00; alternate Fridays 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Frank Lawrence


Patent Examiner 440-03

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April 10, 2003